

Type Approval Certificate Extension

This is to certify that Certificate No. 06/10046 for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	LSIS Co., Ltd.
PLACE OF PRODUCTION	1, Songjeong-dong, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 361-720, Korea
DESCRIPTION	Molded Case Circuit Breaker (3 poles)
TYPE	TD and TS Series Thermal Type: TD100E/N/S/H/P/L, TD160E/N/S/H/P/L; TS100E/N/S/H/P/L; TS160E/N/S/H/P/L; TS250E/N/S/H/P/L; TS400E/N/S/H/P/L; TS630E/N/S/H/P/L; TS800E/N/S/H/P/L; Electronic Type: TS100E/N/S/H/P/L ETS; TS160E/N/S/H/P/L ETS; TS250E/N/S/H/P/L ETS; TS400E/N/S/H/P/L ETS/ETM; TS630E/N/S/H/P/L ETS/ETM; TS800E/N/S/H/P/L ETS/ETM
APPLICATION	Marine, offshore and industrial applications for use in environmental categories ENV2 and ENV3 as defined in LR Type Approval System Test Specification No. 1-2002 where the Test Specification is satisfactory for the intended operation.
Certificate No.	06/10046 (E1)
Issue Date	27 December 2011
Expiry Date	26 December 2016
Sheet	1 of 6


H. Murase
Yokohama Design Support Office
Lloyd's Register

Lloyd's Register, registered office:
71 Fenchurch Street, London EC3M 4BS

STANDARD

IEC 60947-2

RATINGS

Alternating Current

Type	Current rating at 45°C (A)	Rated voltage (V)	Breaking current (r.m.s.) (kA) Icu/Ics	Making current (Peak asymmetrical) (kA)	Power factor Icu/Ics	Over current release (See Note)	Standard
TD100E TD160E	16-100 16-160	480/500 440/460 380/415 220/240	18 35 35 65	40 77 77 143	0.15~0.20	(1)	IEC 60947-2 Utilisat'n category: A
TD100N TD160N	16-100 16-160	480/500 440/460 380/415 220/240	30 50 50 85	66 110 110 187	0.15~0.20	(1)	
TD100S TD160S	16-100 16-160	480/500 440/460 380/415 220/240	42 65 65 85	92 143 143 187	0.15~0.20	(1)	
TD100H TD160H	16-100 16-160	480/500 440/460 380/415 220/240	50 70 85 100	110 154 187 220	0.15~0.20	(1)	
TD100P TD160P	16-100 16-160	480/500 440/460 380/415 220/240	60 100 130 150	132 220 286 330	0.15~0.20	(1)	
TD100L TD160L	16-100 16-160	480/500 440/460 380/415 220/240	65 130 150 200	143 286 330 440	0.15~0.20	(1)	
TS100E	40-100	480/500 440/460	25 42	55 92	0.15~0.20	(1)	

Certificate No. 06/10046 (E1)
 Issue Date 27 December 2011
 Expiry Date 26 December 2016
 Sheet 2 of 6



H. Murase
 Yokohama Design Support Office
 Lloyd's Register

Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."

TS100E ETS	40,80	380/415 220/240	42 85	92 187		(2)	
TS100N	40-100	480/500 440/460	42 50	92 110	0.15~0.20	(1)	IEC 60947-2 Utilisat'n category: A
TS100N ETS	40,80	380/415 220/240	50 100	110 220		(2)	
TS100S	40-100	480/500 440/460	50 65	110 143	0.15~0.20	(1)	
TS100S ETS	40,80	380/415 220/240	65 120	143 264		(2)	
TS100H	40-100	480/500 440/460	65 70	143 154	0.15~0.20	(1)	
TS100H ETS	40,80	380/415 220/240	85 120	187 264		(2)	
TS100P	40-100	480/500 440/460	70 100	154 220	0.15~0.20	(1)	
TS100P ETS	40,80	380/415 220/240	130 150	286 330		(2)	
TS100L	40-100	480/500 440/460	85 130	187 286	0.15~0.20	(1)	
TS100L ETS	40,80	380/415 220/240	150 200	330 440		(2)	
TS160E	40-160	480/500 440/460	42 50	92 110	0.15~0.20	(1)	
TS160E ETS	40-160	380/415 220/240	50 100	110 220		(2)	
TS160N	40-160	480/500 440/460	50 65	110 143	0.15~0.20	(1)	
TS160N ETS	40-160	380/415 220/240	65 120	143 264		(2)	
TS160S	40-160	480/500 440/460	65 70	143 154	0.15~0.20	(1)	
TS160S ETS	40-160	380/415 220/240	85 120	187 264		(2)	

Certificate No. 06/10046 (E1)
 Issue Date 27 December 2011
 Expiry Date 26 December 2016
 Sheet 3 of 6



H. Murase
 Yokohama Design Support Office
 Lloyd's Register

Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."

TS160H	40-160	480/500 440/460	70 100	154 220	0.15~0.20	(1)	IEC 60947-2 Utilisat'n category: A
TS160H ETS	40-160	380/415 220/240	130 150	286 330		(2)	
TS160P	40-160	480/500 440/460	85 130	187 286	0.15~0.20	(1)	
TS160P ETS	40-160	380/415 220/240	150 200	330 440		(2)	
TS160L	40-160	480/500 440/460	65 130	143 286	0.15~0.20	(1)	
TS160L ETS	40-160	380/415 220/240	150 200	330 440		(2)	
TS250E	40-250	480/500 440/460	25 42	55 92	0.15~0.20	(1)	
TS250E ETS	40-250	380/415 220/240	42 85	92 187		(2)	
TS250N	40-250	480/500 440/460	42 50	92 110	0.15~0.20	(1)	
TS250N ETS	40-250	380/415 220/240	50 100	110 220		(2)	
TS250S	40-250	480/500 440/460	50 65	110 143	0.15~0.20	(1)	
TS250S ETS	40-250	380/415 220/240	65 120	143 264		(2)	
TS250H	40-250	480/500 440/460	65 70	143 154	0.15~0.20	(1)	
TS250H ETS	40-250	380/415 220/240	85 120	187 264		(2)	
TS250P	40-250	480/500 440/460	70 100	154 220	0.15~0.20	(1)	
TS250P ETS	40-250	380/415 220/240	130 150	286 330		(2)	
TS250L	40-250	480/500 440/460	85 130	187 286	0.15~0.20	(1)	

Certificate No. 06/10046 (E1)
 Issue Date 27 December 2011
 Expiry Date 26 December 2016
 Sheet 4 of 6


 H. Murase
 Yokohama Design Support Office
 Lloyd's Register

Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."


TS800S	800	480/500	65	143	0.15~0.20	(1)	IEC 60947-2 Utilisat'n category: A
		440/460	85	187			
TS800S ETS/ETM	630,800	380/415	85	187	0.15~0.20	(2)	
		220/240	120	264			
TS800H	800	480/500	85	187	0.15~0.20	(1)	
		440/460	100	220			
TS800H ETS/ETM	630,800	380/415	100	220	0.15~0.20	(2)	
		220/240	120	264			
TS800P	800	480/500	85	187	0.15~0.20	(1)	
		440/460	120	264			
TS800P ETS/ETM	630,800	380/415	130	286	0.15~0.20	(2)	
		220/240	150	330			
TS800L	800	480/500	100	220	0.15~0.20	(1)	
		440/460	130	286			
TS800L ETS/ETM	630,800	380/415	150	330	0.15~0.20	(2)	
		220/240	200	440			

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. 06/10046(E1) and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 06/10046 to which this extension should be attached.

Certificate No. 06/10046 (E1)
 Issue Date 27 December 2011
 Expiry Date 26 December 2016
 Sheet 6 of 6



H. Murase
 Yokohama Design Support Office
 Lloyd's Register

Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."